GEOGRAPHIC SCHOOL BULLETINS

OF THE NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON 6, D.C.

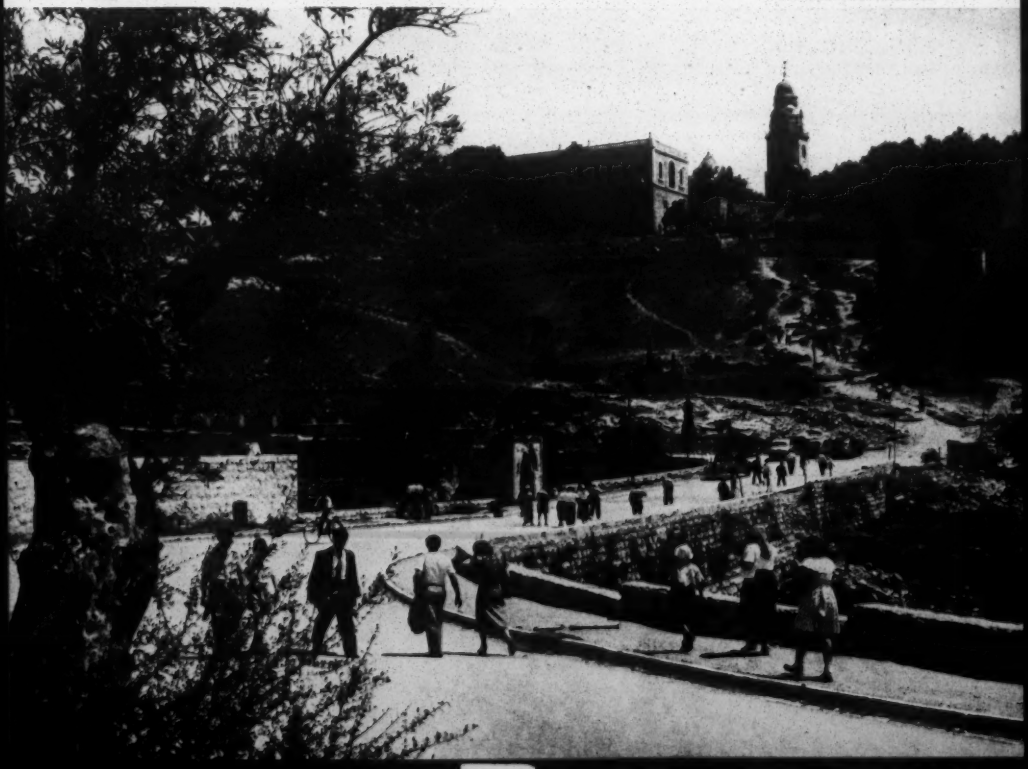
APRIL 30, 1956 VOL. XXXIV, NO. 28

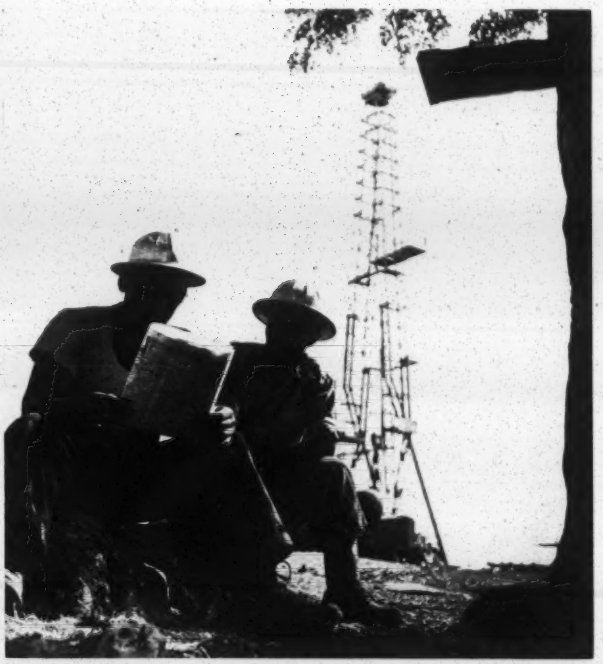
FEATURED IN THIS ISSUE . . .

- ► A New Israel in Old Surroundings
- ► Pato, Argentina's Mounted Mayhem
- ► Portuguese Fishing Fleet
- ► Spring Thunderstorms, Melodrama of the Skies
- ► Peary's Explorations in the Arctic

JERUSALEM, A CITY DIVIDED—Just Beyond Mount Zion (hill in background) Lies No Man's Land, Separating Israel (foreground) and Jordan. Arabs Retain Old City with Its Religious Shrines, While Jews Inhabit New Jerusalem

MAYNARD OWEN WILLIAMS





EMBASSY OF ISRAEL

FUEL FOR A MODERN NATION—Riggers Struck Oil Last Year, Continue Drilling in the Arid Negev

willing to explain his country, its problems, and his part in solving them.

"Don't think of us as Biblical herdsmen roaming a wild land," he says. "It's a little country—not as big as your State of New Hampshire. You can drive the length of it in a day. But it varies widely in climate and landscape. Here, in Galilee, streams and mountains are well watered by good rains. Farmers prosper. Along the seacoast, where we face the eastern end of the Mediterranean, fertile land also grows fine crops. But farther south there are stony Judaean hills, then the triangle of desert, the Negev, whose tip touches the Red Sea. Rainfall tapers off almost to nothing.

"There are about 1,700,000 of us Israelis. Most, like me, were immigrants. We came from all over the world in response to what we call the Law of the Return. Every Jew may settle in Israel, we were told. Melting pot? People have called it a 'pressure cooker'—a better name to describe the rapid chemistry that turned us from old nationalities into Israelis. But somehow we share energy and hope. We set up compulsory schooling for children between five and 13 years old. Secondary schools, technical schools, a university at Jerusalem train our new citizens. In other ways we've worked to develop and improve our land.

"Take farming first, since that's my job. Along the coast, where a few small rivers run the year round, we've got irrigation projects, but bigger plans depend on the Jordan. On our *kibbutzim*, collective farms, every member shares in the ownership of land, pools labor and equipment, and benefits from harvests. Members of each kibbutz live together in a cluster of dwellings, stores, social and cultural centers, a central dining room and kitchen. Fields branch out on all sides. The whole unit looks like a wheel with the community forming its hub. Kibbutzim are old farm systems, dating back to days of the British Mandate. There are other kinds of collectives now and many privately owned farms like my own. But even we individual owners live together in a settlement rather than on our own acres. Perhaps we enjoy company. Perhaps that's why we have such beautiful cities.

"There's Tel Aviv, our largest, with some half million people. It

UMI

GEORGE PICKOW, THREE LIONS

A NEW *Israel* IN OLD SURROUNDINGS

BESIDE the Sea of Galilee (above) fields of crops and neatly stippled orchards contrast with the barren Gadarene hills beyond. Through green farmland flows the River Jordan, aiming like a crooked arrow at the Dead Sea. Ancient names, these. But they mark features and boundaries of a sleekly modern little nation, the State of Israel.

Step down into this spreading Galilean scene and feel the sun's warmth. Sweet scents of fruit trees fill the dry air. A growling tractor approaches. Its driver, deeply tanned, dressed only in khaki shorts and canvas hat, pauses to exchange greetings.

This is an Israeli—born, perhaps, in Austria, bred on city streets, now a fruit and vegetable farmer. Like thousands of Jews, he migrated to Israel when the republic declared its independence in May, 1948, while partition of Palestine was being considered. Israel, to him, is not only a new nation, but still a new home.

Hospitable as they are, most Israelis have little time to talk. Their hours are filled with the patient labors that will forge a future for themselves and their homeland. But this farmer clambers from his tractor,

GEOGRAPHIC SCHOOL BULLETINS, copyright © 1956 by the National Geographic Society, John Oliver La Gorce, President. Published weekly during the school year by the School Service Division, Ralph Gray, Chief. Entered as second class matter, Post Office, Washington, D. C. International copyright secured. All rights reserved. Rates: United States, 75¢ for 30 issues (one school year); Canada, $1.00; elsewhere, $1.25. United States only, three years (90 issues) for $2.00. The National Geographic Society is a nonprofit educational and scientific society established for the increase and diffusion of geographic knowledge.

PATO

ARGENTINA'S MOUNTED MAYHEM

"A ROUGH-AND-TUMBLE combination of lacrosse, ice hockey, polo, dueling, and going over Niagara Falls with nothing but water wings." Thus a sports writer describes the Argentine game of *pato*. To play it successfully, a man needs a fast, rugged horse, a polo-size field with two baskets strung from poles, a "ball" with six jutting handles, three teammates and four opponents, endowed with suicidal dispositions.

These ingredients produce an explosive pastime. Players on wildly

MELVILLE CRAWFORD

galloping horses swing from saddles to snatch up a loose ball. Viciously they tear it from each other's grasp. One heads for the enemy basket at full tilt. According to the rules he must hold the ball invitingly at arm's length. Defenders swarm upon him, clawing for the pato, trying to ride him off. An accurate heave through a basket scores a goal.

Such a game is mere play to leather-tough gauchos of Argentina's pampas. Gleefully, these cowboys absorbed pato from Indians who, in turn, devised it after Spaniards introduced horses to the New World. "Pato" means duck. Horsemen at one time tied a dead duck in a sack, head protruding, to play with. Authorities banned the game as too rough. The present ball, plus some official rules to inject a grain or two of safety, restored the sport. Now crowds in Buenos Aires yell lustily as frantic riders tug for possession. Some sportsmen want to introduce pato to the United States.

UMI

sits like a jewel on the smooth coast line, proud of its functional buildings, clean parks, and wide streets. North of it lies Haifa, our only big seaport. Israel's section of Jerusalem serves as capital. Jordan has the old city with its holy shrines. Our part is new, streamlined as you Americans say.

"If you're looking for picturesque historic sites, we can show you other towns: Acre still bristles with crusader battlements. Tiberias, right near here on the Sea of Galilee (or Lake Tiberias) was a Roman town. And there's Nazareth.

EMBASSY OF ISRAEL

TRADE FAIR IN TEL AVIV—Israelis Jam Streets, Balconies, as Floats Roll Through Their Largest City

"Farming has already improved so much that we're nearly self-sufficient in food. But by instinct and training most of us are tradesmen and craftsmen. Our cities are sprouting industries. With tools and raw materials we would be a workshop nation.

"The trouble is, we have to import most of these materials. The Dead Sea gives us chemicals. Of course there was an oil find last year which made us wonder if we're lucky enough to be sitting on those oil fields that underlie so much of the Middle East. Maybe the Negev hides mineral deposits—after all, it was supposed to be the site of King Solomon's mines. But so far, we depend on friends abroad to send us things to work with. Our citrus fruits help pay for them.

"Already our craftsmen export one product—diamonds. No, we don't have diamond mines, unfortunately, but we do have expert diamond cutters, refugees from Europe.

"Power we need badly, and lack the coal to generate it. Someday we'll shackle the Jordan for hydroelectricity. Now we experiment with wind-driven generators while our scientists study solar energy."

He climbs back on the tractor. "We have many problems," he says. "Saddest is the enmity with some neighboring Arab nations. We must trust that level-headed people on both sides of the line of demarcation will find ways to soothe the bitterness."

salting them away in the ship's hold. He may work till midnight—no time clock—as his pay depends on the size of his catch.

Because they get bigger and better fish with hooks, these men, in their stocking caps, plaid shirts, and sou'-westers, never use nets. They cast lines long enough to hold 1,000 hooks, baited with tasty herring or mackerel. While waiting for the line to fill with caught fish, the doryman often does a little individual fishing with a hand lure—a long piece of lead which fools the fish into thinking it is herring.

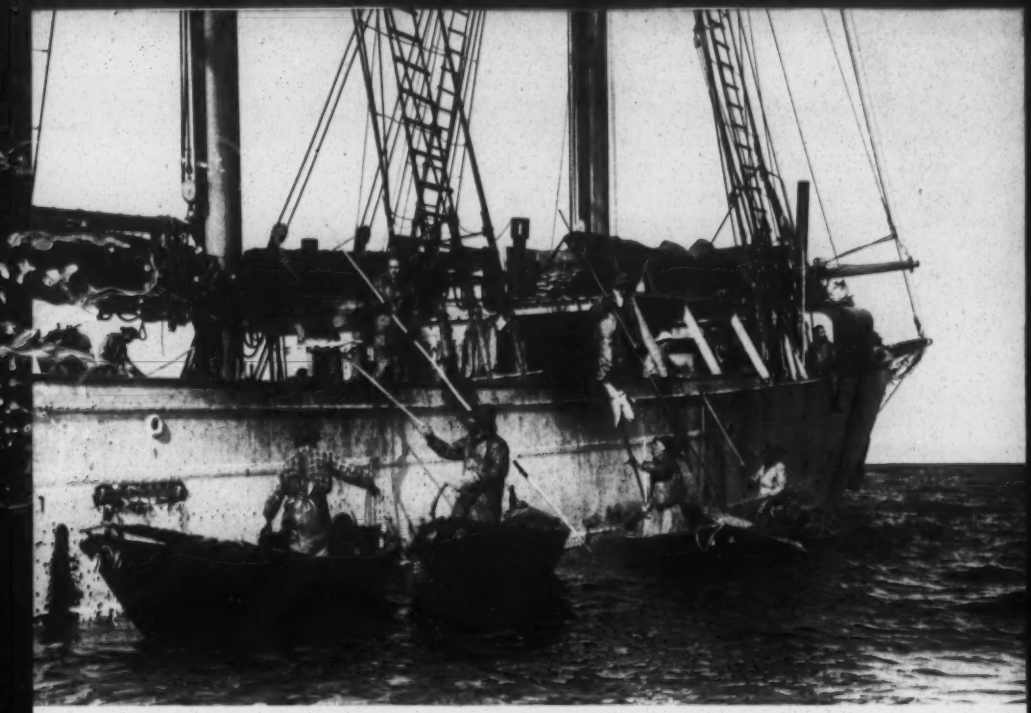
When he leaps for the lead, he is hooked (left, above).

The life of the Grand Banks fisherman is rugged but it has a fascination for its followers that doesn't lessen with the years. Many men have fished the Banks from early boyhood to old age. Some can add up over 60 years with the fleet.

In early April they set out and they stay off the Banks, or farther north in Davis Strait, until the ships' holds are packed with salted cod, even if it means braving the wild North Atlantic gales of September and October. A few lucky ones may reach home earlier, but when a Portuguese wife waves farewell to her fisherman husband she never knows when he may return.

For an extensive account of the thrilling adventures of these hardy sea rovers, including 21 color photographs, see "I Sailed with Portugal's Captains Courageous" in *The National Geographic Magazine*, May, 1952.

UMI



Portuguese Fishing Fleet

Illustrations by Alan Villiers

FOR four and a half centuries spring has brought the Portuguese fishing fleet to Newfoundland's Grand Banks on the wings of the brisk east wind. In all these years few aspects of the annual expedition have greatly changed. Electric lights and steam heat make the cruise more comfortable for the crewmen during the foggy weeks of fishing. Diesel engines spare them the wearisome labor of hoisting anchors and sails. But sails are still the main means of movement, the cod are the same simple, stupid fish, and the giant icebergs drifting down from the Arctic Ocean through Davis Strait are as frigid and treacherous as in the days of Portugal's great sea rover, Vasco da Gama.

The fleet sails from Lisbon (Lisboa) with half crews, picking up the rest in the Azores, Portuguese islands 1,000 miles west. Going on to the Grand Banks, the schooners anchor. Then dorymen spread out singly, as they have done for centuries, in their little keelless, rudderless wooden boats (below). They fish from four in the cold gray morning till their long hooked lines are heavy with cod, returning to the mother ship to unload (top picture). A lucky fisherman may haul in half a ton of fish in a single day. He completes his work day cleaning and

ACME

SIZZLING POWER—This Bolt, Groping for Milwaukee's Roofs, Could Momentarily Light Every Bulb in the City

by-product of violent thunderstorms. Repeated trips up and down can build up hailstones to the size of golf balls before they crash to the ground, battering cars and shattering greenhouses.

Falling rain carries cold air down with it. A downward current may adjoin a rocketing upward blast so that a foolhardy pilot, flying through the storm, may find his plane literally torn apart. Bailing out, he can be borne upward in his parachute, or have it ripped to ribbons.

When rain comes there's plenty of it. The average thunderstorm drops 110,000 tons of water on eight square miles. But rain is only one of the storm's acts. As drops are flung up and down inside the thunderhead a huge negative charge of electricity forms, gathering in the curving underbelly of the cloud. Directly under this storehouse of electricity an exactly equal positive charge gathers in the ground. As the cloud moves forward the ground charge keeps pace with it, passing through trees, buildings, across fields.

Positive and negative electricity attract each other. So ground and cloud charges try desperately to meet. Air, a poor conductor, keeps them apart until tensions become overwhelming. People caught outdoors as a storm nears sometimes report a "tingling feeling" in the air. Others may see St. Elmo's Fire—a glimmering aura playing from protruding objects like a ship's masthead. These phenomena warn of extreme danger. Charges have built up to the point where they are leaking off into the air. Conditions are ripe for a lightning stroke.

It starts with a short, incomplete stab of electricity, darting from

SHERMAN L. RONEY

Spring Thunderstorms

MELODRAMA OF THE SKIES

AS spring warms to summer, the view above becomes familiar. A cloud builds up, usually toward the end of a hot, humid day. It billows into a towering blue-gray mountain with a wide, flat top, scraping close to the stratosphere. As it approaches it mutters in anger. Trees shrivel before cold gusts that play about it. Leaves look silvery against its murky bulk. Golfers run for cover. Mothers call children indoors. Cattle huddle fearfully.

Thus the curtain rises on a thunderstorm, one of nature's most remarkable shows. An average one releases 50 times the energy of the first atomic bomb. In the United States, thunderstorms start about 6,000 forest fires a year. They may kill people, flood streams, burn houses, flatten crops. They also relieve droughts and fertilize soil.

This grand opera of the heavens begins with a column of gently rising air. Warm and moist, it floats upward through a chimney of cooler air to its white, cottony cap—the photogenic cumulus cloud that puffs across summer skies. If conditions are right, the rising air gains power, shooting upward faster, then cooling suddenly so that its vapor condenses into droplets of water. These grow bigger and heavier. The cloud boils higher and darker.

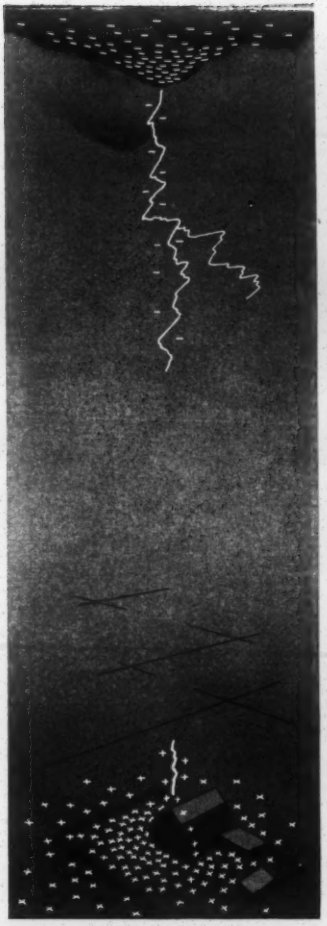
Water drops get heavy enough to fall, then are snatched up again by fierce updraughts. Flung to the top of the cloud, they freeze, fall again, are shot upward again for a new coating of ice. This is hail—

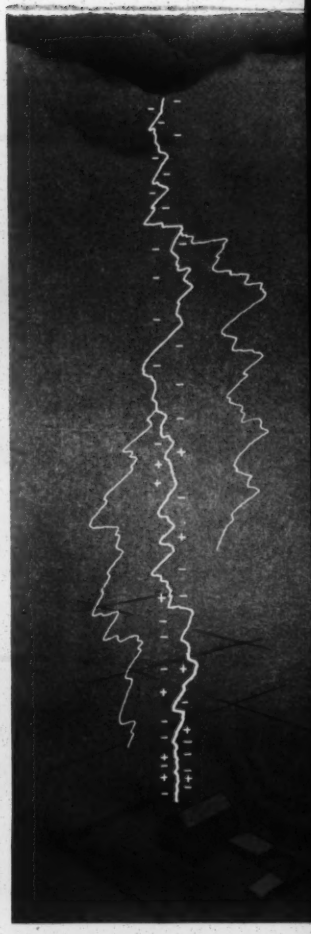
Lightning rods do not prevent lightning from striking. They only guide the charge harmlessly to the ground by providing good conductors for electricity. And remember, lightning can, and does, strike the same place twice.

Incidentally, Benjamin Franklin was lucky to live through that fabled experiment with kite and key that led to his invention of the lightning rod. Flying a kite in a thunderstorm is an excellent way of getting electrocuted.

National Geographic Magazine—
June, 1950, "Lightning in Action" (75¢); Dec., 1943, "Weather Fights and Works for Man" ($1.00)

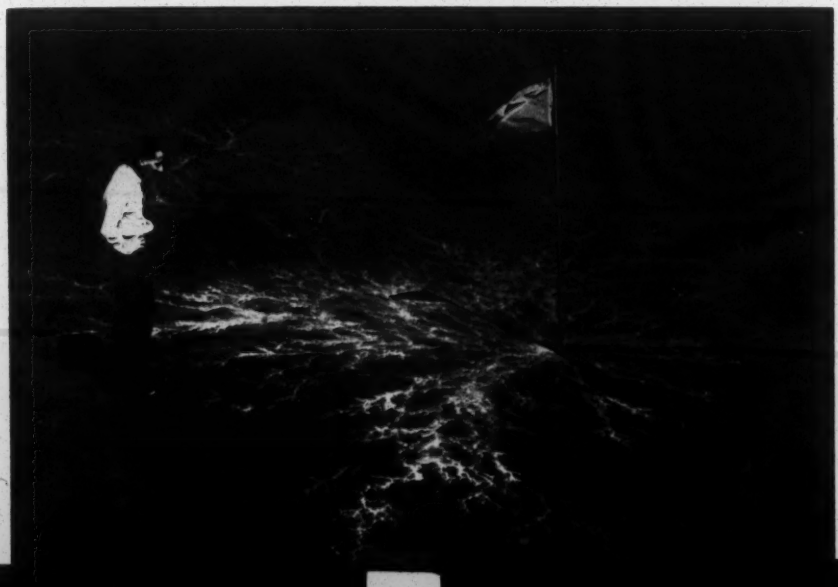
DRAWINGS BY IRVIN E. ALLEMAN, NATIONAL GEOGRAPHIC PHOTOGRAPHER WILLARD R. CULVER (BELOW)





335

MINUS AND PLUS CHARGES REACH FOR EACH OTHER, THEN MAKE CONTACT Leaders Spring from Cloud and Ground. They Touch in a Blinding Flash, Restoring Equal Charges. Scoring a Hole in One (below) Lightning Brands a Putting Green



DRAWN BY IRVIN E. ALLEMAN

PORTRAIT OF A SUMMER STORM—This Thunderhead *(cumulo-nimbus)* with Typical Anvil-Shape Top Sprouts above a Cold Front. Cold Air Wedges Damp, Warm Air Upward

the cloud as if groping for contact with the ground charge. It smashes atoms in its path, ionizing them so that they conduct the charge better. Thus the leader from the cloud blazes its trail, step by step, earthward (drawings below).

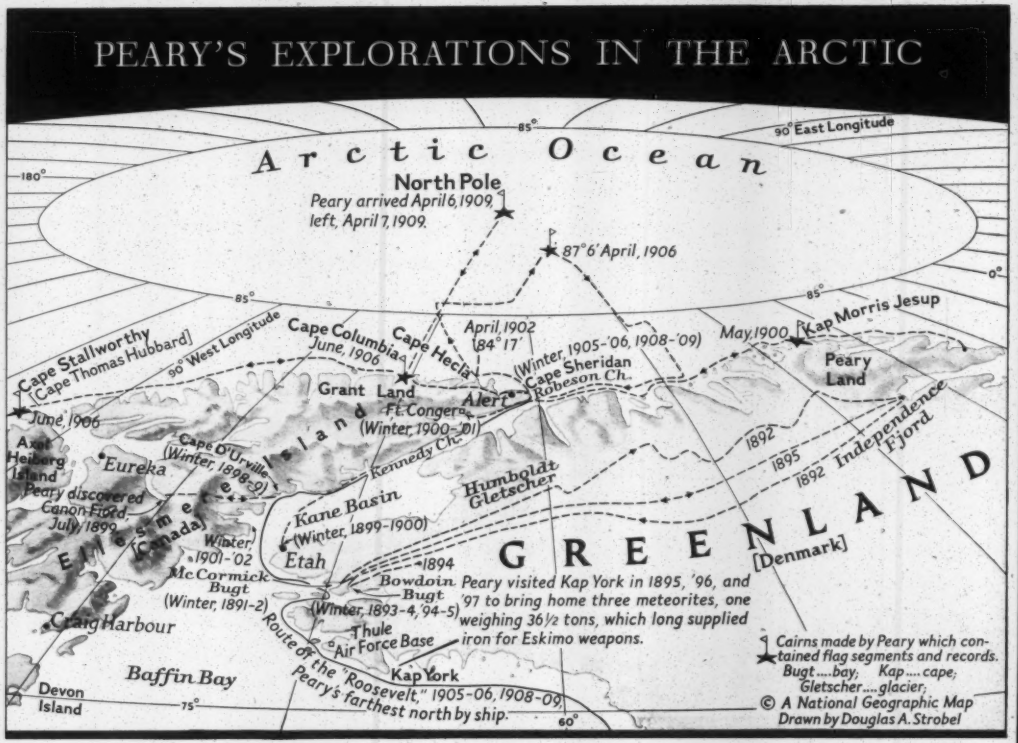
The positive ground charge concentrates to meet the leader. Finally the ground electricity sends up a flickering leader of its own which reaches for the negative charge from the cloud, then makes contact. Massive current rushes between ground and cloud. Lightning has struck. The entire process takes about one hundredth of a second.

The pathway for this gigantic force may be some two inches wide, or as slender as a hair. Often lightning jumps from cloud to cloud, or across a single cloud—between positive and negative charges. If it connects with the ground, it's apt to strike tall objects because they're nearer the cloud. Lightning smashes things that resist it—chimneys, wooden walls and furniture, plaster. It may blast apart the trunk of a tree. It produces the ripping, booming, echoing explosions we call thunder—music for the drama. On the credit side, it combines nitrogen in the air with rain. Drops carry the fertilizer down to soak into acres of soil.

Simple precautions reduce danger of being struck by lightning. Get indoors. If caught in an open field, lie down. Keep away from trees, wire fences, open vehicles like tractors. Passengers inside sedans or all-metal planes are safe. Lightning may strike, but metal bodies will carry electricity harmlessly around people.

When a storm rages around your home, stay away from fireplaces and electric wiring since lightning is apt to enter by way of the highest point on the house, or the best conductor. Don't telephone during a storm. Don't take a bath or shower—pipes are good conductors.

ONE hundred years ago—on May 6, 1856—Robert E. Peary was born. A month more than 47 years ago—on April 6, 1909—he became the first man to reach the North Pole. The discoverer's portrait above, taken just after returning to base from the epic 1,000-mile sledge trip over polar drift ice, reveals the fatigue and tension of his ordeal. Peary never went back to the Arctic after this picture was made, but most of his extensive previous exploration shows on the map. In 1898 a series of disasters led to the freezing of his feet and amputation of all but the smallest toe on each foot. A lesser man would have admitted defeat, but, surviving primitive surgery and racking pain, Peary said (quoting Seneca), "I shall find a way or make one."



336

And he did. Never before had a man stood on a pole of the earth. Never since has any man walked to the North Pole and back. Peary's feat remains unique and undimmed. On all his northern travels, he carried a United States flag made by his wife, snipping out pieces of it to deposit in cairns at significant points. This flag now hangs enshrined at the headquarters of the National Geographic Society, which is proud to have been associated with Peary's Arctic triumphs.